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PROCEEDINGS

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OF THE

NATIONAL SCIENCE CLUB,

WASHINGTON, D. C.

APRIL, 1897.

WASHINGTON, D. C.:
JUDD & DETWEILER, PRINTERS.
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THE NATIONAL SCIENCE CLUB.

INCORPORATED MAY 28, 1893.

OFFICERS FOR 1897.

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MISS MARIE LOUISE GOODMAN, Ph. B. Westport, Mo.

General Secretary.

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Mrs. Anna Lowell Woodbury	Washington, D. C.
Mrs. Ada D. Davidson	Whiting, Ind.

Terms of office expire in 1899.

Mrs. John L. Mitchell	Milwaukee, Wis.
Mrs. Horatio King	Washington, D. C.
Mrs. Rosa Smith Eigenmann	Bloomington, Ind.

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Mrs. W. A. Kellerman.	Rosa Smith Eigenmann.
Laura Osborne Talbott.	

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PROCEEDINGS FOR 1897.

The Third Annual Meeting of the National Science Club was held April 6-9, 1897.

The following program was carried out as nearly as possible :

Wednesday, April 7, 9 a. m., Science rooms, 303 Lenman building, 1425 New York avenue.—Registration of members.

10 a. m.—Meeting of Council, report of committee, recommendation of new members.

11 a. m., Hall of Columbian University.—Address of welcome of General Secretary; response of Mrs. Emilia C. Anthony in absence of Mrs. Rosa S. Eigenmann, the President.

Reading of papers :

"Hydroids," by Miss Minnie Stafford and Miss Buhannon, Chicago, Ill.: read by the General Secretary.

"Plant Variation," by Mrs. Emilia C. Anthony, Gouverneur, N. Y.

"An Object Lesson in Natural Science," by Mrs. W. A. Kellerman, Columbus, Ohio.

"Relation of Woman to the Science of Being," by Mrs. Elizabeth O. Sampson Hoyt, Ph. D., Washington, D. C.

"Winter Buds," by Miss Rebecca Wayne Knight, Vineland, N. J.; read by Miss Margherita Borst.

After which opportunity was given to visit the scientific departments of the Government.

Wednesday, April 7, 2 p. m., Hall of Columbian University.—Reading of papers :

"Study of Child Life," by Mrs. Florence Floyd Merriam, Waverly, N. Y.; read by Miss Pauline Leavens.

The following resolution was read and unanimously approved, the Secretary being instructed to convey a vote of thanks to the signers of the resolution :

To National Science Club, Washington, D. C. :

Whereas the present legislature of Wisconsin has passed a law making the protection of the birds of equal importance with that of the protection of the forests, and has established a Bird Day as well as an Arbor Day, to be observed in the schools: therefore, be it

Resolved, That the National Science Club, now in session at

Washington, D. C., be requested to recognize and endorse this humane act of Wisconsin's legislature.

FRANCES M. WINKLER,
Ex-President College Endowment Association.

HANNAH R. VEDDER,
Ex-President College Endowment Association.

ELLA C. PEIRCE,
Member of Science Committee.

MARY E. ANDERSON,
Member of Science Committee.

MARY E. MERRILL,
Specialist in Geology.

ANNABELL COOK WHITCOMB,
Parlor Lecturer on Botany.

ELLEN C. SABIN,
President of Milwaukee College.

ELLEN M. H. PECK,
Ex-President Woman's Club of Wisconsin.

CORA P. FERRY,
Member of Science Committee.

SARAH E. BOARDMAN,
Member of Science Committee.

MARIETTA A. BOOTH,
Member of Science Committee.

MILWAUKEE, WISCONSIN, April 2, 1897.

The work of Mrs. Louise M. Stephenson, of Helena, Ark., in obtaining legislative enactment for the establishment of Bird Day in the public schools of Arkansas was spoken of by the General Secretary, and members of other States were urged to work for protection of our native fauna and flora. A vote of thanks was sent to Mrs. Stephenson.

"Economic Government," by Mrs. Mary L. Barnes, Lacon, Ill.; read by Miss Pauline Leavens.

"The Physical Sciences," by Mrs. Mary Newbury Adams, Dubuque, Iowa.

"Sociology," by Mrs. B. W. Bonnell, Waverly, N. Y.; read by Miss Pauline Leavens.

Section of Botany met at 4.30 p. m., at Mrs. John L. Mitchell's residence, 32 B street N. E., where Miss Ellen W. Cathcart read Mrs. Elizabeth G. Britton's report of the Section of Bryophyta (Mosses).

Thursday, April 8, 10.30 a. m., Hall of National Museum.—Reading of papers:

"Revision of Adeorbis and American Marine Mollusca erroneously referred to that genus," by Katherine Jeanette Bush, Yale University Museum; read by General Secretary.

"Mushrooms," by Mrs. Emilia C. Anthony, Gouverneur, N. Y.
 "The Way of Climbing Plants," by Mrs. Mary E. Treat, Vine-
 land, N. J.

"The Conservative Rôle of Bacteria in Nature," by Miss Mary
 Forster, Buffalo, N. Y.; read by Mrs. S. Fuller.

"The Morning Glory" (Morphology, Histology, Physiology),
 by Miss Mary E. Hart, Oxford, Ohio; read by Mrs. S. Fuller.

"Leaf Variation," by Mrs. W. A. Kellerman, Columbus, Ohio.

"Extracts from the Life of Linnæus," by Mrs. Lydia Diller
 Zell, Lancaster, Pa.; read by title.

"Astronomy," by Miss Margherita F. Borst, Washington, D. C.

"The Myrmeleon," by Mrs. Frances Rhees Burket, Washing-
 ton, D. C.

"Moths and Butterflies, with Observations on *Papilio asterias*,"
 by Mrs. Annabel Cook Whitcomb, Milwaukee, Wis.

"Entomology," by Miss Mary E. Murtfeldt, Kirkwood, Mo.;
 read by the General Secretary.

"A New Pyralid," by Miss Mary E. Murtfeldt, Kirkwood, Mo.

"Autumn Butterflies," by Miss Mary E. Murtfeldt, Kirkwood,
 Mo.; read by Mrs. M. N. Adams.

"An Undescribed Psylla," by Miss Mary E. Hill, Kennebunk,
 Me.; read by the General Secretary.

"A Bit of Family History" (*Membracis binotata*), by Miss
 Elizabeth G. Hughes, Bloomington, Ind.; read by the General
 Secretary.

2.30 p. m.:

"The Shells of New Jersey,"* by Mrs. John L. Mitchell, Mil-
 waukee, Wis.

"Meteorology,"* by Mrs. L. H. Grenewald, York, Pa.

"Cupiliferæ: the Oak Family,"* by Mrs. Emma J. Curtis,
 Milwaukee, Wis.

"Bird Architecture,"* by Mrs. Harriet Brown Bailey, Provi-
 dence, R. I.

Announcement by Mrs. John L. Mitchell, chairman of Execu-
 tive Committee, of two newly elected officers for ensuing year:

President, Mrs. W. A. Kellerman, Columbus, Ohio; Treasurer,
 Miss Marie Louise Goodman, Westport, Mo.

Lecture by Miss Mary Proctor: Subject, "Other Worlds than
 Ours." Illustrated by lantern slides. This lecture was listened
 to by a large and enthusiastic audience.

Friday, 5 p. m.—Reception at 1400 New Hampshire avenue
 by Mrs. Phebe Hearst.

* Owing to unavoidable circumstances, greatly to the regret of the coun-
 cil, these papers were omitted to give time for Miss Proctor's lecture, and
 were read at Columbian University a week later.

REPORT OF THE GENERAL SECRETARY.

The first meeting of the Council was called to order at 10 o'clock by the General Secretary, who invited Mrs. Olivia Ford to read a portion of Scripture, after which the Lord's Prayer was repeated by the members in concert.

Reports of General Secretary and Treasurer were read and approved.

Thirty new members were elected. The meeting then adjourned, to assemble at hall of Columbian University at 1 o'clock for reading of papers.

The Constitution was then read, after which some changes proposed were discussed.

Notice was given that at next annual meeting some changes would be made, and among them the time of annual meeting be changed from January to April.

Wednesday, April 7, 11 a. m.—The National Science Club convened in hall of Columbian University. Mrs. Emilia C. Anthony, of Gouverneur, N. Y., presided.

An address of welcome was given by Mrs. Laura Osborne Talbott, to which Mrs. Emilia C. Anthony responded, including in her response a letter from the President, who expressed her regret at her unavoidable absence, and also her good wishes for the future success of the organization.

Thursday, April 8, 10. a. m.—The Council met in the library of National Museum, Mrs. M. Newbury Adams, chairman, who appointed a nominating committee, consisting of Mrs. J. L. Mitchell, Mrs. Adams, Mrs. Kellerman, and Mrs. Anthony.

It was voted that members be notified that all papers for annual meeting should be typewritten, and should be received by the General Secretary a month at least before the annual meeting.

It was also voted that Auxiliaries that had paid their fines for three years should have their fees remitted and be made independent.

The by-law on sections was approved.

Mrs. Horatio King and Mrs. W. A. Kellerman were appointed a committee to prepare a form for membership blanks.

It was the sense of the Council that the officers should be appointed from different sections of the country.

Council adjourned to hall of National Museum for reading of papers. Mrs. John L. Mitchell, chairman of Executive Committee, presided.

At 2 p. m. a meeting of Council was held in the library of the National Museum, at which Mrs. Mitchell presided. The report of Nominating Committee was announced, and the following officers were unanimously elected for the ensuing year: Presi-

dent, Mrs. W. A. Kellerman, Columbus, Ohio; Vice-President, Mrs. Almena B. Williams, A. M., Washington, D. C.; Treasurer, Miss Marie Louise Goodman, Ph. B., Westport, Mo.; General Secretary, Mrs. Laura Osborne Talbott, Washington, D. C.

It was voted that the General Secretary be empowered to employ necessary assistance for her correspondence.

The meeting adjourned until Friday, 9.30 a. m.

Friday, 9.30 a. m.—The President, Mrs. W. A. Kellerman, presided. Meeting adjourned until committees were appointed.

Committee on Finance: Marie L. Goodman, Ph. B.; Mary E. Hart, Jane Francis Winn.

Committee on Publications: Mrs. W. A. Kellerman, Mrs. R. S. Eigenmann, Mrs. L. O. Talbott.

Committee on Resolutions: Mrs. M. N. Adams, Kate Furbish.

Committee on Revision of Constitution and By-Laws: Mrs. Emilia C. Anthony, Mrs. Laura O. Talbott, Mrs. Almena B. Williams.

Saturday, 9.30 a. m.—A meeting was held for closing the business of the Council. In the absence of the President, Mrs. Mary N. Adams presided, and the Committee on Resolutions reported the following:

Resolved, That whereas the members of the National Science Club desire to show their appreciation of courtesies extended to them during their annual meeting in the city of Washington, April 6–9, 1897: therefore a unanimous vote of thanks is tendered to the authorities of the Smithsonian Institution for use of hall of National Museum; also for the lantern and services during Miss Proctor's lecture.

A unanimous vote of thanks was extended to Mrs. John L. Mitchell and also to Mrs. Phebe Hearst for the elegant hospitalities extended to the members of the Club by receptions at their respective residences.

The visiting members from ten different States—Iowa, Ohio, Illinois, Wisconsin, Pennsylvania, Tennessee, Connecticut, New York, Massachusetts, and Maine—tendered a unanimous vote of thanks to the local committee for their courtesy to them during the entire meeting.

A vote of thanks was passed to the retiring President for her great interest in the Club, particularly for the large number of excellent members introduced by her, and it was voted that Mrs. Rosa Smith Eigenmann be elected to the Executive Committee, her term closing in 1899.

A vote was passed extending to Mrs. Almena B. Williams, A. M., the Vice-President, a vote of thanks for her undiminished interest in the welfare of the Club, with the hope that her health may soon permit her to resume her place in its council.

The report of Committee on Sections, of which Mrs. Williams was chairman, was approved, it being as follows:

That the following Sections be recognized in the Constitution and By-Laws of the organization:

- Biol. *Biology*—
- E. *Ethnology*—
- A. *Archeology*—
- O. *Ornithology*—Edith Barnes, Northboro, Mass.
- K. *Entomology*—Mary E. Murtfeldt, Kirkwood, Mo.
- I. *Ichthyology*—Rosa Smith Eigenmann, Bloomington, Ind.
- Z. *Zoölogy*—Mary E. Hart, Oxford, Ohio.
- S. *Psychology*—Laura Osborne Talbott, 927 P St., Washington, D. C.
- B 1. *Spermatophyta* (Seed-bearing plants)—Susan Minns, 14 Louisburg Square, Boston, Mass.
- B 2. *Pterodophyta* (Ferns)—Ellen Weir Cathcart, 1318 Eleventh St., Washington, D. C.
- B 3. *Thallophyta* (Algæ and Fungi)—Cora H. Clarke, Jamaica Plain, Mass.
- B 4. *Bryophyta* (Mosses)—Elizabeth G. Britton, New York city.
- B 5. *Physiological Botany*—Katherine E. Golden, B. S., Lafayette, Ind.
- P. *Paleontology*—Ada D. Davidson, Whiting, Ind.
- G. *Geology*—Mary Forster, 99 College St., Buffalo, N. Y.
- C. *Astronomy*—Mary Proctor.
- F. *Forestry*—Almena B. Williams, Washington, D. C.
- R. *Microscopy*—Mary A. Booth, F. R. M. S., 32 Byers St., Springfield, Mass.
- D. *Economics*—Mary Forster, 99 College St., Buffalo, N. Y.
- L. *Study of Child Life*—Mrs. Sara G. Farwell, St. Paul, Minn.

During the year 1,000 outlines each have been issued from the Sections upon Physiological Botany, Ferns, Geology, Economics, Study of Child Life, Meteorology, and a List of Best Works on Botany.

It is desirable that these outlines should receive close study from members, and they should be returned, with results of observations, to the chairman of the Section or to the General Secretary, prior to January 1 of each year.

Several bulletins have been sent out, and it would facilitate the workings of the organization if each member would correspond with the Secretary as to corrections and improvement in statement in said bulletins.

On reviewing the progress of the organization during the past year and a quarter, it need only be said there has been a constant increase in membership and interest in all that attests its healthy and steady growth. During the fifteen months since the last annual meeting eighty-one new members have been elected and forty papers were presented at the annual meeting.

REPORT OF THE CHAIRMAN OF THE DIVISION OF BRYOPHYTA.

ELIZABETH G. BRITTON, TORREY BOTANICAL CLUB, NEW YORK.

Since the organization of Division 3, for the study of the mosses, there have been issued two observation blanks—the first in 1894, the second, revised and enlarged, in 1895. Five hundred copies of each have been distributed and have met with general appreciation. The last edition has been nearly exhausted, and there seems to be a demand for a third. It has been suggested by several who have used these blanks that illustrations of the several points to be observed would be very helpful, and as this has never been done for our American mosses, I think it is a good suggestion, and I am willing to prepare such an illustrated pamphlet; but owing to the expense of having the drawings made, it could not be issued free of charge, as the previous ones have been, unless some member of the Club who is competent to make the drawings is willing to do them under my direction, if I supply the material, free of charge. Of those who have had the blanks sent to them, about seventy have devoted more or less time to the collection and study of the mosses and have corresponded with me about them. They are most numerous in the Eastern States, but a few are scattered over more distant ones, such as Washington, California, Colorado, Nebraska, North Dakota, Arizona, Michigan, and Nova Scotia.

Besides issuing these observation blanks, I have written and published in the *Observer* two series of articles on the mosses. The first series was issued in 1894, entitled "How to Study the Mosses." They included eight articles, describing and figuring sixteen species of mosses selected from the commonest genera, which students in the Eastern States were sure to find in their region. In connection with these articles specimens were distributed free to all who wished to study them, and there is still a large surplus on hand which may be had by any member of the National Science Club who wishes them and will send name and address, with postage for mailing them. In 1896 another series of articles was written for the *Observer*, including the "Wonders of the Moss World." These were issued every other month from January to October, and included nine species of rare or unusually interesting mosses, such as the luminous moss, the *Buxbaumias*, the *Phascums* and *Pleuridium*s; the water-mosses, *Fontinalis* and *Dichelyma*, and the umbrella mosses, *Tetraplodon* and *Splachnum*. Specimens of several of these were also issued in connection with the articles, and duplicates may still be had on application to me.

As part of this work we have arranged exchanges and correspondence between students who were willing to help each other,

and assisted Miss Cora H. Clarke in her work with the Home Study Course, in Boston, supplying specimens of mosses to advanced students who wished to undertake such difficult genera as *Hypnum* and *Orthotrichum*. I have also supplied a series of reviews of all the literature pertaining to American species on the mosses, whether published in American magazines or abroad. These reviews have been published in the Bulletin of the Torrey Botanical Club of New York, and have been reprinted for use as a card catalogue by A. B. Seymour, of the Cambridge Botanical Supply Company.

Since the second edition of Dr. Barnes' Keys to the Species and Genera of North American Mosses was issued there have been about 600 new species of mosses described, principally from Macoun's Canadian collections by N. C. Kindberg. The third edition of Dr. Barnes' Keys has just been issued, and includes the descriptions of many of these in the supplement. This will be found very useful to students who have not access to large libraries and the various publications in which they are scattered; nevertheless it is certain that many of these new species are of little value, because foreign bryologists are very careless about the work which has been done here by others. It is safe to say that if there were three students naming collections of American mosses abroad, each of a different nationality, say Norwegian, French, and German, we should speedily have three different names for one and the same thing. There are cases on record where some of our mosses have eight different names, each given by a different person in Europe, simply because they happen to live in different countries and do not keep informed as to what other students are doing. It is still more true of work done by American students; this is often utterly ignored by foreign botanists, as shown recently in the *Botanical Gazette*. Therefore in the last five years we have had to waste a great deal of time and postage in trying to find out what different students meant, and it has necessitated a great deal of comparison of specimens and descriptions. One good result has come from it, however, for our American students have learned to be very critical, and are keeping thoroughly informed on all publications referring to North American Mosses.

There has been a general revival, both here and abroad, in the study of the mosses in recent years, and three important foreign publications have been in progress, only one of which is completed—the French one. I refer to Husnot's *Muscologia Gallica*, Braithwaite's *British Moss Flora*, and Limpricht's *Laubmoose*, published in Rabenhorst's *Kryptogamen Flora*. Each of these has its own special merits, and should be studied in connection with any critical work on our North American mosses. In recent years, since Lesquereux & James' Manual was issued, critical revisions of several of our genera have been issued. Dr.

Barnes has revised *Fissidens*; M. Cardot, *Fontinalis*; Dr. Best, *Thuidium*, and M. Bescherelle, *Calymperes*. Dr. True is at present engaged on a revision of *Dicranum*, Mr. Cheney on *Amblystegium*, and Mr. Grout on the *Isotheceaceæ* and *Brachythecium*. Since 1893 I have been engaged on a critical study of the acrocarpous mosses and have published a series of Contributions to American Bryology in the Bulletin of the Torrey Botanical Club. These have included studies of the genera *Leucobryum*, *Orthotrichum*, *Ulota*, *Physcomitrium*, *Physcomitrella*, *Bruchia*, *Scouleria*, *Dicranella*, and *Encalypta*.

One of the most hopeful signs for the future of American Bryology is the awakening interest in the local floras of different regions of our own country by students who live in regions where the moss flora is rich and little known. We have had the pleasure of assisting several such in the mountains of Pennsylvania, and North Carolina, Colorado, Idaho, and Montana. This is the kind of work that should be encouraged, and the sending of large miscellaneous collections to be studied abroad should be *most emphatically discouraged*. It is this which has induced me to devote more time than I could well spare from my more advanced work to teach beginners to help themselves, and I appeal to the members of the National Science Club who are able and willing to help us to a better knowledge of the moss flora of our country to do so. The flora is so varied and extensive that we cannot have too many at work; in fact, we are suffering from a lack of American students, and it is the duty of all those who have the means, taste, and facilities to join in helping along the cause of this most interesting science. It is one particularly fitted for women, for it requires patience, keen observation, and much indoor study; the material is easily obtained, and, with exception of a few books and a compound microscope, the expense entailed is not great and the rewards and pleasures are endless.

REPORT ON PRESENT STATUS OF AMERICAN WOMEN IN ENTOMOLOGY.

BY MARY E. MURTFELDT, KIRKWOOD, MO.,
Chairman Section of Entomology.

While the Section of Entomology regrets that the interest in this fascinating branch of natural science is not as widely extended among women as could be desired, it nevertheless congratulates itself that the work of American women in this line undoubtedly exceeds in the aggregate that of the women of any other nation.

England has Miss Eleanor Ormerod, whose work in applied

entomology has received not only the highest honors in her own country, but has obtained world-wide recognition and appreciation and secured for her a place in the front rank of investigators and students. Her sister, Miss Georgiana E. Ormerod, whose death last year was much deplored, did some valuable anatomical and systematic work. Another English lady in India, a Mrs. Wylly, published some very interesting observations in the Journal of the Bombay Natural History Society on "Droves of Lycænid Caterpillars Herded by Ants," which were republished by the Canadian Entomologist, in volume 21, page 132.

These are the only women authors on entomological subjects quoted in American journals during the past ten years. Doubtless there are many on the Eastern Continent and elsewhere who are interested in this science, but neither their names nor achievements have, to the writer's knowledge, crossed the Atlantic.

In the United States, where women recognize no barriers to intellectual work in any direction and whose sex conservatism is more elastic than in Europe, entomology, as well as all other branches of natural science, has not failed of enrichment from their contributions.

In looking up the work of American women in this country during the last decade, I find the following authors of books or of articles on strictly entomological subjects published in the various periodicals devoted to the science:

Among the earliest writers we find Mrs. Mary Treat, of Vine-land, N. J., whose graceful and humorous style afforded a most attractive setting for her interesting discoveries. Besides occasional contributions to entomological magazines, she published a few years ago a very convenient and useful little work on the "Injurious Insects of the Farm and Garden," and soon after a more original one on "My Garden Pets—Bees, Ants, and Spiders." Miss Emma A. Smith, of Peoria, some years ago took up the study of the *Coccidæ* with great enthusiasm, and gave to the world through entomological periodicals a number of interesting discoveries; but after her marriage her attention was diverted to another branch of science, in which her husband was engaged, and entomology lost the benefit of her observations.

Two other very attractive and popular books are from the pen of Mrs. Julia P. Ballard, lately deceased. These are "Insect Lives, or Born in Prison," and "Among the Moths and Butterflies."

Among the most valued contributors to "Psyche," the organ of the Cambridge Entomological Club, is Mrs. Anna Kathrina Dimmock, whose anatomical studies and descriptions are of much interest and show much patient research. Miss Caroline G. Soule, of Brookline, Mass., and Miss Ida M. Eliot, of Stowe, Vt., have published together and individually a considerable number of careful studies of lepidopterous larvæ, especially of

butterflies. Miss M. E. Morton, of New Winsor, N. Y., has done considerable important work in the same line. No name appears more frequently in periodical literature than that of Mrs. Annie Trumbull Slosson, whose captivating style, with unobtrusive and charming personal touches, brighten like sunlight the pages of the magazines favored with her accounts of her collecting experiences and her descriptions of especially choice insect treasures. Mrs. Slosson has a national reputation as a professional collector, and has contributed to the riches of all the extensive cabinets of the country. Other students and occasional authors whose names have come to my knowledge are the following:

Miss Frances M. Slack, of Massachusetts, on "Vegetarian Mosquitoes," published in *Insect Life*, vol. 5, No. 3.

Miss Hattie H. Warner, on "Kentucky Butterflies," in *Canadian Entomologist*.

Miss A. M. Jordan, of Napa, Cal., on "Butterflies of California," in *Canadian Entomologist*.

Miss Hattie M. Wadsworth, of Manchester, Me., some excellent descriptions of dragon-flies, of which she is a prominent collector.

Mrs. C. H. Fernald, valuable notes on *Papilio turnus* and *Pyraanis cardui* in *Canadian Entomologist*, vol. 18, p. —. Mrs. Fernald is a most thorough entomologist, both as a systematist and biologist, and has published far too little to do justice to her labors and discoveries. In collecting, determining, and investigating she has for many years worked with her husband, who is our leading American authority on the Microlepidoptera and the entomologist of the Massachusetts Agricultural College and experiment station at Amherst.

Miss Cora H. Clarke, of Jamaica Plain, Mass., although primarily a worker on Algæ, has published some most interesting papers on the Caddis flies.

Mrs. M. E. Rice, of Coryville, Pa., has written most entertainingly for *Insect Life* on a peculiar leaf-hopper, *Entilia sinuata*.

Miss Alice M. Beach, of Ames, Iowa, has recently published in a bulletin of the Agricultural College a valuable descriptive and systematic paper on the *Thripidae* of Iowa.

Miss Emma Sirine, of the same college, is referred to as an extensive collector of the same minute but destructive insects.

Miss Maysie Ames, assistant to Professor Bruner, State entomologist, Lincoln, Neb., is mentioned as being especially interested in the insects affecting the apple.

Miss Hughes, of the Classical School of Indianapolis, has been making a study of the very peculiar and often grotesque insect forms known as the "Tree-hoppers." Her paper will be read before this Club at the present meeting.

Miss Mary E. Hill, of Otto, N. Y., will present a valuable paper

on a new species of *Psylla*. Miss Hill is also interested in the investigation of marine insects, an almost undeveloped branch of the science.

A large number of ladies have found the profession of entomological artist both delightful and profitable. In the front rank of these we find Mrs. Anna B. Comstock, equally distinguished as author, anatomist, delineator, and engraver. The great majority of the illustrations that add so greatly to the value of the superb "Manual of Entomology," of which she is joint author with her talented husband, were made by her own pencil and graver, and many of them have about them a characteristic originality and artistic expression that one finds in the work of but few other artists. We hope the next decade will find the roll of authors many times enlarged.

METEOROLOGY.

ADDRESS BY THE CHAIRMAN, MRS. L. H. GRENEWALD.

To the Executive Committee and also to the Members of the National Science Club, Greeting:

To the Meteorological Section, as your chairman, I proffer my hearty coöperation for our mutual advancement.

Among women whose minds trend to the scientific, there are perhaps of all the sciences none so quickly and easily engaging attention as meteorology and astronomy, and their analogy can be so easily recognized that the phrase meteorology (Greek stem, meteora—meteors or atmospheric phenomena) was originally applied to the consideration of all appearances in the sky, both astronomical and atmospherical. The term is now confined to that department of natural philosophy which includes the movements of the atmosphere, the constitution and weight of the air, its temperature and moisture, as the precipitation of vapor in the form of dew, hoar-frost, fog, clouds, rain, snow, and hail, the laws of storms, including tornadoes and water-spouts, with various electrical phenomena, in which are included thunder-storms and the polar aurora; also the optical phenomena of rainbow, twilight, mirage, coronæ, and halos, to which may be added aerolites and shooting stars.

Aristotle (B. C. 384) is said to be the first who collected, in his work "On Meteors," the current prognostics of the weather. Many of these were derived from the Egyptians, who had studied the science as a branch of astronomy, and a number of prognostics were the result of his own observations and reflections; but, looking at his writings from the point of view now acquired, his failure was complete. Theophrastus, a pupil of Aristotle,

next took up the classification under four heads, viz., the prognostications of rain, wind, storm, and fine weather, and no attempt was made to explain irregular or capricious phenomena. Cicero and Virgil and also Lucretius are accredited with having written on the subject; but, ignorant of every departure of physical science, their explanations were not only vague, but ridiculous and absurd.

Meteorology remained for ages in this dormant condition, and no actual progress was made until the seventeenth century. The discovery of the weight or pressure of the atmosphere by Torricelli in 1643 was the first step in the progress of meteorology to the rank of science.

The early history of the thermometer (literally heat-measurer) is very obscure, but it is generally conceded to be of Italian origin. Many claimants have sought to share at least a portion of the credit of its invention, but it is a generally accepted fact that it was in the early part of the seventeenth century that Galileo enriched science with a species of thermometer in its elementary form. Improvements were frequently added to his invention, which continued in general use until the eighteenth century, when the Fahrenheit thermometer superseded it. Since the middle of the eighteenth century only three types of thermometer scales have been in common use, viz., the Fahrenheit, Centigrade, and Réaumur. The Fahrenheit is used in England and this country, the Centigrade is generally used in France, and Réaumur's in Germany. Apparently they differ in wide degree. Fahrenheit's scales marks the freezing point 32° , boiling 212° ; the Centigrade arrangement marks the freezing point 0 or zero and the boiling point 100° . In the Réaumur the freezing point is also marked 0 or zero, as in the Centigrade, while the boiling point is marked 80° . In books of foreign travel, when the author adopts the thermometer of the country described the reader may be perplexed to know what degrees of temperature are indicated, according to the scale most familiar. It is therefore a matter of interest to know and easy to remember that the Centigrade scale is reduced to that of Fahrenheit by multiplying by 9 and dividing by 5; that of Réaumur to Fahrenheit by multiplying by 9 and dividing by 4, or that of Fahrenheit to either of the others by simply reversing the processes.

Elaboration is not necessary to call attention to the many instruments of precision that have added to the science of meteorology and promoted the most advisable procedures of long-continued observations and a faithful recording of facts. For upward of half a century the establishment of meteorological societies and weather bureaus have contributed in a high degree to the solid advancement of the science which more than any other must depend on extensive and carefully prepared observations.

In this respect the United States stands preëminent. Great Britain is also well represented, and in France, Germany, Russia, etc., the science is being widely cultivated. Not only the success but the actual establishment of our meteorological service is attributable to the unselfish labors of scientists, such as Myers, Maury, Ferrel, Redfield, Espey, Coffin, Loomis, Henry, and Lap- ham. Few of these names are familiar to their countrymen, "but the Weather Bureau stands today a splendid monument to their memory." France has always claimed the honor of the first worker in Le Verrier, who evidently preceded Franklin in climatological experiments; but Dr. John Lining, of Charleston, S. C., made definite observations in 1738, when Le Verrier was still quite young. Probably the first definite attempt to forecast weather changes by systematic simultaneous observations was made by men whose names are as household words to every American. Thomas Jefferson and James Madison secured contemporaneous observations at Monticello and Williamsburg—one in the mountains, the other by the sea—and not only laid the basis for a correspondent study of weather conditions, but even foreshadowed the present crop bulletin. Many years afterwards, in the midst of the war of 1812, President Madison wrote to Jefferson, "The British robbed me of my thermometer and barometer."

(The foregoing collation of facts of meteorological interest is intended for reference and review, and acknowledgment is made to many sources of information. No credit is taken for original research. "Others have labored and we enter into their labors.")

In presenting an outline for the year's study, optical meteorology is the first suggestion, because it is ever an exemplified object lesson. By its simple consideration the skilled observer's practiced judgment can fairly decide the dew-point and relative humidity without consulting the recording instruments and making elaborate reductions. The little child tripping merrily to school, inhaling deep draughts of ozone and securing an accumulated storage for the dissemination of the day's energy, wonders "what makes the rainbow such pretty colors," and "if there is really a pot of gold at the end of it." Personal reminiscences could be mentioned of swift infantine feet running through soggy meadows, on, on—heedless of the awaiting and sure-to-come punishment, and longing for opportunity to again pursue this *ignis fatuus*, the desirable benefice whose wealth could purchase all the world.

In some manner, without the discrimination of individuality, does it not naturally appeal to us all? Shall we like the school child wonder why these things exist and yet remain insensate to nature's teachings? Or rather, cultivate real philomathy, become genuine meteorologists, and, in the definition of natural history, truly "weather wise?"

Some of you may enjoy this enviable proficiency, and having acquired elementary meteorology are prepared for the advanced methods of this great science. To this exceptional class, having omitted suggestions appertaining to the more intricate departments of elementary work, may the outline be found profitable for your review. Your own apperceptions must judge of your acquirements and desires; but it is earnestly urged that you make the foundation of your study upon a solid basis and sufficiently extended to embrace the reason for and the interpretation of established meteorological laws, that the superstructure may be fairly coincident in your mind not only of the beauties, but of the inestimable though attainable philosophical knowledge of this great science.

As observers of meteorological societies, state weather services, or weather bureaus, let not supererogate observations suffice you. The auxiliary work thus performed is most desirable and necessary, and without long periods of continuous observations and painstaking methods no real facts have ever been established, and for this reason meteorology is considered one of the most intricate and difficult of the sciences. Along with your work attain scholarship. Expunge theories and acquire facts. Make honest efforts to rise above mere subsidiary work. Obtain knowledge as explained by and revolved into causes and reasons, powers and laws. This will not only advance meteorology, but will make your counsel and opinions earnestly desired and abundantly appreciated.

“The husbandmen who plowed
The soil, and toiled to raise the grain, that fed
The ages past, are all forgot. And so,
Perhaps, the little we can do, to make
The world grow wise and good, will also be
Forgot; our names unwritten on the page
Where every day men turn to read; but who
Shall say which work or whose is likeliest to
The Master's own until the end be come?”

LIST OF PAPERS PRESENTED TO THE NATIONAL SCIENCE CLUB
APRIL, 1897.

“Leaf Variation: An Object Lesson in Natural Science,” Mrs. W. A. Kellerman, Columbus, Ohio; “Hydroids,” Miss Minnie Stafford and Miss Buhannon, Chicago, Ill.; “Plant Variation” and “Mushrooms,” Mrs. Emilia C. Anthony, Gouverneur, N. Y.; “Relation of Woman to the Science of Being,” Mrs. Elizabeth O. S. Hoyt, Washington, D. C.; “Winter Buds,” Miss Rebecca Wayne Knight, Vineland, N. J.; “The Environment of Plants,” Mrs. Mary M. Boyce, Chicago, Ill.; “Sociology,” Mrs. B. Bonnell, Waverly, N. Y.; “Study of Child Life,” Mrs. Florence Floyd

Merriam, Waverly, N. Y.; "Economic Government," Mrs. Mary I. Barnes, Lacon, Ill.; "The Physical Sciences," Mrs. Mary Newbury Adams, Dubuque, Iowa; "Revision of Adeorbis and American Mollusca erroneously referred to that genus," Miss Katherine Jeannette Bush, Yale University Museum; "The Way of Climbing Plants," Mrs. Mary E. Treat, Vineland, N. J.; "The Conservative Rôle of Bacteria in Nature," Miss Mary Forster, Buffalo, N. Y.; "The Morning Glory" (Morphology, Histology, Physiology), Miss Mary E. Hart, Oxford, Ohio; "Extracts from Life of Linnaeus," Mrs. Lydia Diller Zell, Lancaster, Pa.; "Astronomy," Miss Margherita F. Borst, Washington, D. C.; "The Myrmeleon," Mrs. Frances Rhees Burket, Washington, D. C.; "Moths and Butterflies, with Observations on Papilio asterias," Mrs. Annabel Cook Whitcomb, Milwaukee, Wis.; "Entomology," "A New Pyralid," and "Autumn Butterflies," Miss Mary E. Murtfeldt, Kirkwood, Mo.; "An Undescribed Psylla," Miss Mary E. Hill, Kennebunk, Me.; "A Bit of Family History" (*Membracis binotata*), Miss Elizabeth G. Hughes, Indianapolis, Ind.; "Meteorology," Mrs. L. H. Grenewald, York, Pa.; "Cupiliferæ: The Oak Family," Mrs. Emma J. Curtis, Milwaukee, Wis.; "Bird Architecture," Miss Harriet Brown Bailey, Providence, R. I.; Lecture by Miss Mary Proctor: Subject, "Other Worlds than Ours," illustrated by lantern slides; "The Common Crow" (*Corvus Americanus*), "Sweet Pea," (*Lathyrus odoratus*), "The Green Mountain Giant," Miss Martha French, Jacksonville, Vt.; "Report on Mosses," Mrs. Elizabeth G. Britton, New York city; "The Ground Floor of Nature," Mrs. Ada Marie Peck, Waterville, N. Y.; "The Diapenciaceæ," Miss Margaret Fursman Boynton, Lockport, N. Y.; "Monograph on Mound Dwellers of Mississippi County, Arkansas," Mrs. M. M. Goodrich.

These papers will be published in the journal of the organization during the year if members are willing to subscribe one dollar a year for its publication.

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TREASURER'S REPORT.

Katherine A. Taylor in Account with the National Science Club from January 1, 1896, to December 1, 1896.

Dr.

1896.			
Jan.	Balance on hand.....	\$58 39	
Jan.	Fees for membership.....	20 00	
Jan.	" ".....	8 00	
Feb.	" ".....	8 00	
Mar.	" ".....	6 00	
April.	" ".....	11 00	
May.	" ".....	10 00	
June.	" ".....	6 00	
July.	" ".....	6 00	
Aug.	" ".....	12 00	
Sept.	" ".....	7 00	
Oct.	" ".....	14 00	
Nov.	" ".....	10 00	
		<u>\$176 39</u>	

Cr.

1896.			
Jan.	Printing, paper, and postage.....	\$14 00	
Mar.	Printing, postage, paper, etc.....	17 00	
Mar.	Janitor, 10 months.....	20 00	
June.	Printing reports.....	55 00	
June.	Envelopes.....	2 18	
June.	Expenses.....	15 00	
		<u>\$123 18</u>	
	Balance, cash.....	53 21	
		<u>\$176 39</u>	

* Elected since April 1, 1897.

Laura Osborne Talbott in Account with the National Science Club from December, 1896, to April, 1897.

Dr.

1896.			
Dec.	Balance brought forward		\$53 21
1897.			
	Fees for membership	\$18 00	
Jan.	" "	18 00	
Feb.	" "	19 00	
Mar.	" "	19 00	
Mar.	" "	13 00	
Apr.	" "	5 00	
			92 00
			\$145 21

Cr.

1896.			
Dec.	Expenses and printing	\$20 00	
Jan.	Postage and paper	9 00	
	Outlines—Geology, Child Study, and expenses	14 00	
Mar.	Printing	15 00	
	Current expenses	15 00	
	Envelopes, printing, postage, etc.	15 00	
			\$88 00
	Cash on hand	57 21	
			\$145 21

Signed by auditors :

ELIZA TITUS WARD.
MRS. S. S. FULLER.

Legacies may be lost to the organization by failure to use a proper form. We suggest the following :

FORM OF BEQUEST.

I hereby give and bequeath to the National Science Club the sum of \$....., and hereby authorize my executors to pay the same to the person who shall be acting as Treasurer of said Society.

